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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,368	09/27/2006	Hirofumi Takikawa	3796.P0053US	4669

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EXAMINER	
HOU, MICHELLE M	

ART UNIT	PAPER NUMBER
4181	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,368	TAKIKAWA ET AL.	
	Examiner	Art Unit	
	MICHELLE HOU	4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) *1-4 and 7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1 . The elected claims 5-6 are presented for examination. Claim 1-4 and 7 are non-elected claims and are withdrawn from further consideration. The following rejections are made.

election Acknowledged

1. Applicant's election with traverse the invention group II of claims 5-6 filed 12/5/08 is acknowledged. Applicant's traversed the restriction requirement on the ground that firstly, a search for the elected invention would necessarily entail a search for the non-elected invention. Applicant's traversal is interpreted in such that inventions of groups I-III are so closely related and thus, the examination should be given to entire inventions of groups I-III. Examiner noted that it is not clear whether this is applicant's admission that the inventions of groups I-III are not patentable distinct to each other where examiner can apply one prior art to reject all three inventions. Moreover, the restriction requirement of the 371 national stage application should be based on lack of unity(as informed in previous office action) , not a patentably distinctiveness or search burden. Therefore, applicant' traversal is not valid or relevant to determining lack of unity between the inventions. Restriction practice between the inventions is deemed to be proper as evidenced by reviewing prior art which teaches a technical feature commonly shared by prior art reference. Fore example, a review of Carbon Nanoballon Produced by Thermal Treatment of Arc Soot by Xu et al., makes clear that the inventions of the groups I-III lack the same or corresponding special technical feature(i.e hollow carbon

nanoballoon structure) because the cited reference(s) appear to demonstrate that the claimed technical feature does not define a contribution which each of the inventions, considered as a whole, makes over the prior art, see PCT Rule 13.1 and PCT Rule 13.2. Unity exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding claimed special technical features.

For the aforementioned reason, the requirement is still deemed proper since the invetions of groups I-III lack unity and thus, made FINAL.

Information Disclosure Statement

3. There has not been any information disclosure statements (IDS) submitted thus, none is reviewed, considered, or attached.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claim 5 is rejected under 35 U.S.C. 102(a) as being anticipated by Xu (NPL: Carbon Nanoballoon Produced by Thermal Treatment of Arc Soot)

Regarding applicant's claim 5, Xu discloses a method of producing carbon nanoballoon structure comprising heating soot prepared by arc discharge having a primary particle diameter of 20nm or more at high

temperature in inert gas atmosphere, wherein the balloon structure comprises nanoballoon structure, a curved surface of connected graphite sheets, and a diameter of 20-500nm (40nm) (Xu, p.73,77,80).

With respect to how the diameter is calculated, no distinction is seen to exist because the reference clearly teaches that the nanoballoons have the claimed diameter.

In view of the above, the reference anticipates the claimed invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu (NPL: Carbon Nanoballoon Produced by Thermal Treatment of Arc Soot) in view of Takikawa (US 20030188963 A1).

Xu et al,. teaches the claimed structure and respective method with the exception of the soot partially including carbon nanohorn. Xu does not disclose the soot method including nanohorns.

Soot is known to include nanohorns.

Takikawa however, discloses the soot method including nanohorns.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention filed to take Xu's teaching in view of Takikawa to arrive at the same invention of instant applicant claims because Takikawa clearly suggested the deficiency of Xu's teaching.

One would have been motivated to make such modification because said modification provides process recovery benefits. A given area of the graphite anode is evaporated from an electrode point of the arc discharge and simultaneously an arc jet is generated from the notch. Thereby a carbon nanoparticle comprising soot of carbon nanomaterial containing carbon nanohorn is generated. The soot is deposited on a recovering plate for recovery.

Conclusion

9. Claims 5-6 are rejected.

Correspondence

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELLE HOU whose telephone number is (571)270-5847. The examiner can normally be reached on Monday to Friday, 8AM EST to 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.H.
/Vickie Kim/
Supervisory Patent Examiner, Art Unit 4181